Massachusetts Wetlands Restoration Program
Example Technical Services for Designated Priority Projects
July 2005

- **Field elevation and positional survey**. Determine topography, bathymetry, elevations and coordinates of key features and structures, prepare existing and future conditions plan, etc.
- **Ownership and deed determination.** Determine ownership for specific parcels; research property titles, identify proper ownership contacts, obtain "right to access" for scheduled project tasks, confirm aquaculture leases / shellfish grants and other property interests, etc.
- **Appraisals and land valuation services.** Determine value of land and real property, conduct narrative and summary appraisals, conduct market analysis, and other related services by certified or licensed appraiser according to specifics of State, Federal and other standards.
- **Remote image / data acquisition and interpretation**. Acquire and interpret aerial photographs, satellite imagery, LIDAR, SONAR, and other remote data to assist in the characterization of biological and physical conditions, etc.
- **GIS data development**. As part of other services or for specific GIS data development tasks, compile data and develop geo-spatial layers or other data types, etc.
- **Mapping and site plan preparation**. Prepare plans of existing and proposed conditions at the project site, stamped by a PE or PLS, as applicable.
- **Botanical surveys**. Conduct surveys of the vegetation composition of salt marshes, submerged aquatic vegetation (eelgrass), and fresh water wetlands, etc.
- **Wetland delineation.** Delineate wetlands to determine the limits of jurisdictional areas (salt marshes, submerged aquatic vegetation [eelgrass], fresh water wetlands) for project design and permitting purposes, etc.
- **Wildlife habitat studies.** Conduct studies on the ability of the wetlands to provide wildlife habitat, including habitat for state-listed species, etc.
- **Water quality surveys**. Design and conduct tests of water quality and other related services.
- **Sediment and substrate surveys**. Design and conduct surveys and test to characterize the quality and composition of sediments and substrates, etc.
- **Flood studies, hydrologic/hydraulic studies**. Characterize flows and currents, including volumes, velocities, and vectors. Calculate the correct culvert size and invert elevations that will provide adequate flow and flushing for both non-tidal and tidally-influenced systems, determine whether the project will result in flooding of neighboring properties, etc.
- **Marine and underwater surveys**. Ability, qualifications, certifications, licenses, and insurance to operate water craft and to conduct SCUBA and remote surveys.
- **Environmental modeling**. Develop site specific or generic models or utilize use existing models to predict and understand various conditions at restoration sites, populate model with necessary data, obtain data where necessary, etc.
- **Management plans.** Work with restoration project team including landowner(s) to develop specific and generic plans for the management, maintenance and use of restoration sites; develop Memoranda of Understanding/Agreements; moderate and adjudicate disputes; coordinate with utility providers and develop utility relocation plans; develop traffic re-location plans; implement management plans, etc.
- **Wetland functional assessments**. Assess the functions provided by salt marshes, submerged aquatic vegetation (eelgrass), and fresh water wetlands and assess the impacts of the proposed work on these functions, etc.
- **Impact assessments**. Determine the impacts of the proposed work on wetlands, water quality, and wildlife.

- **Alternatives analyses**. Prepare a variety of project alternatives and analyze these based on degree of expected restoration of the wetland, wetland impact, cost, permits required, etc.
- **Civil engineering**. Develop grading plans, perform hydraulic calculations, perform earthwork calculations and design, etc.
- **Environmental engineering.** Design protocols to test dredged materials for contaminants, develop plans on how to handle and dispose of contaminated sediment, design stream channels to convey waterways currently contained in closed culverts, etc.
- **Database design and specific software work.** Develop data management tools, such databases, spreadsheets, or other software applications, including scripts, forms, and programming for the monitoring and tracking of restoration sites, etc.
- **Site remediation**. Prepare material handling and disposal plans, conduct sampling, prepare quality assurance plans, etc.
- **Landscape design and planting**. Prepare planting plans, design wildlife habitat enhancements, plan public accessibility, obtain plant and other landscape material, etc.
- **Construction specifications preparation and cost estimation**. Prepare design specifications for inclusion into construction bid documents and prepare project construction cost estimates, etc.
- **Permitting.** Prepare local, state, and federal wetland-related permit applications, including Notices of Intent, 401 Water Quality Certification applications, Environmental Impact Reports, Chapter 91 Waterways License applications, Section 404 permit applications, Coastal Zone Federal Consistency Determination Requests, MHD permits, Coast Guard permits, etc.